The Monitor

The Newsletter of the ETV Advanced Monitoring Systems (AMS) Pilot

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Why Mercury CEMs?

Mercury is a highly toxic metal that exists in a variety of forms. It is difficult to control and measure and finds its way into the environment along a number of pathways. Mercury released into the atmosphere is deposited onto the land and finds its way into waterways.

Once in water, bacteria can convert mercury into methyl mercury, the most toxic form of the metal. Mercury can accumulate in fish as well as in humans and animals that eat the fish.

EPA estimates that 253 tons of mercury are emitted into the atmosphere each year in the U.S. from industrial sources—major sources being incinerators and other combustion sources.

Currently most mercury emissions are measured through periodic sampling and analysis, resulting in several weeks' delay in obtaining test results. When the test shows that mercury emissions are under control, the assumption is made that emissions also remain under control between the tests.

In contrast, mercury CEMs can provide real-time data on mercury emissions.

Mercury CEMs are used in Europe and Asia but have seen limited use in the U.S. because they are not required by regulations.

A new EPA rule provides for the voluntary use of mercury CEMs, and EPA regional offices can allow their use on a site-by-site basis.

EPA is considering regulating mercury emissions from coal-fired plants operated by utilities to generate electricity. Such regulation would be a strong driving force for requiring the use of mercury CEMs.

Priority, Collaboration Expedite Verification Tests for Mercury CEMs

Vendors interested in submitting their continuous emission monitors (CEMs) for mercury for verification testing will get the opportunity sooner than expected because of the technology's high priority and the collaboration of divisions within the U.S. Environmental Protection Agency (EPA). More than 10 vendors are being contacted about participating in the test.

Mercury CEMs are high on the priority list of needed environmental monitoring technologies for both EPA (see sidebar) and the air stakeholder committee of the Advanced Monitoring Systems pilot, which is managed by Battelle as a partner with EPA's National Exposure Research Laboratory through the Environmental Technology Verification Program (ETV).

In addition to ETV, the Air Pollution Prevention and Control Division (APPCD) of EPA's Office of Research and Development's National Risk Management Research Laboratory (NRMRL) is interested in evaluating the performance of these technologies. Battelle and APPCD are discussing a joint verification program. The U.S. Department of Energy (DOE) and Department of Defense (DOD) are also being contacted for possible interest in collaborating on this test. The joint effort will reduce costs to participating organizations by capitalizing on existing test procedures, test facilities, knowledge and experience, and laboratory resources.

Battelle and APPCD plan to conduct a two-phase ETV verification test for mercury CEMs, as follows:

- The first phase will involve testing the technologies at the APPCD's pilot plant in Research Triangle Park, NC. This will be a controlled series of tests, with varied stack conditions, to evaluate each CEM's performance. Conditions that can be varied include particulate loading and type, temperature, mercury concentration and species. An ETV verification report and statement will be generated from this phase for each participating vendor.

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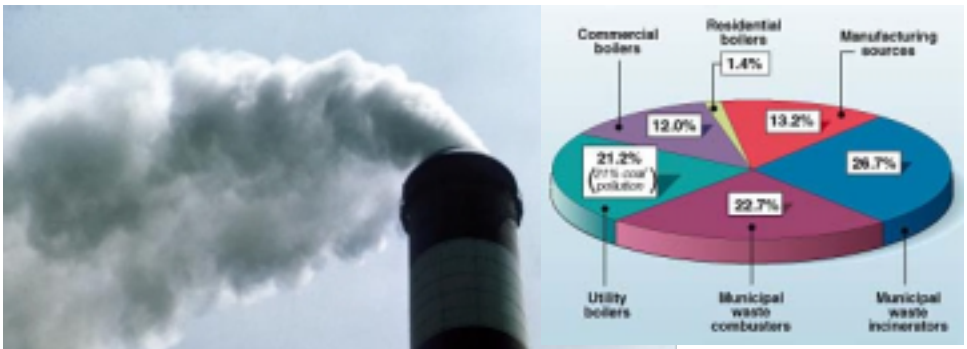

The percentage of mercury emissions to the atmosphere from various sources, according to the U.S. EPA.

Photo courtesy of the National Renewable Energy Laboratory.

The AMS pilot is one of 12 pilots in the U.S. Environmental Protection Agency's Environmental Technology Verification Program. ETV was established to accelerate the development and commercialization of improved environmental technologies through third-party verification testing and reporting of the technologies' performance. The ETV process provides purchasers and permitters with an independent assessment of the technology they are buying or permitting and facilitates multi-state acceptance. For further information, contact Helen Latham at Battelle, 505 King Ave., Columbus, Ohio 43201-2693; Phone 614-424-4062; Fax 614-424-5601; E-mail lathamh@battelle.org.

Meet the Stakeholder Committees

Two members of the AMS pilot's stakeholder committees are spotlighted in each issue of *The Monitor* – one each from the air and water committees.

Christine M. Kolbe
Water Stakeholder Committee

Ms. Kolbe is an aquatic scientist for the Texas Natural Resource Conservation Commission (TNRCC) and currently serves as the project manager for the Multi-Phase Binational U.S./Mexico Rio Grande Toxic Substance Study. She also serves as a member of the Rio Grande Basin Advisory Committee. Previously, she was employed at several Texas agencies, including the Texas Water Commission.

She coordinates monitoring with the TNRCC's regional offices, river authorities, and with local, state, and federal agencies. Examples of her other responsibilities include updating and rewriting guidance documents (e.g., the Texas Surface Water Quality Procedures Manual); conducting surveys and assessments of impacts to surface waters; and collecting and analyzing samples from water, sediment, fish, and invertebrates.

Ms. Kolbe has a B.A. in biology and environmental studies from Northeastern Illinois University and an M.S. in aquatic biology from Southwest Texas State University. She has published numerous papers on water quality issues and received awards from several state agencies and commissions.

Philip J. Galvin
Air Stakeholder Committee

Dr. Galvin is the chief of eastern monitoring for the New York State Department of Environmental Conservation's Division of Air Resources and has been with the division since 1971. His current responsibilities include designing research projects to assess ambient concentrations of ozone, toxics, and acid deposition; coordinating laboratory services; supervising staff operating 60 monitoring sites; and participating in the development of a comprehensive data management system for air monitoring. He also serves as the division's liaison with other states, federal agencies, and academia on regional pollution transport issues and joint research projects.

Dr. Galvin has a B.S. degree in biology and chemistry and M.S. and Ph.D degrees in atmospheric sciences from the State University of New York at Albany. His current research projects include measuring toxic trace metals and monitoring for ozone precursors, toxic organics and metals, and visibility and aerosols. He has published papers reporting results of his work and is a member of several professional organizations, including the Air and Waste Management Association.

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- Mercury CEMs that demonstrate reasonable performance in the first phase can participate in the second phase, which will test the technologies at a full-scale facility(s). This phase may be conducted in collaboration with DOE and DOD testing organizations. An ETV verification report and statement will also be issued to each vendor participating in this phase.

Mercury CEM vendors will be invited to attend a meeting in March to discuss previous testing experience and ETV verification test procedures. Vendors interested in attending the mercury CEMs planning meeting or who want additional information should contact Tom Kelly at Battelle (614-424-3495 or e-mail kellyt@battelle.org).

Note to Vendors:

For additional information about upcoming verification tests, please contact the following Battelle staff:

General information about all AMS verification tests–Tom Kelly, 614-424-3495 or kellyt@battelle.org.

On-line turbidimeters, fine particulate monitors, –Ken Cowen, 614-424-5547 or cowenk@battelle.org.

Optical open-path monitors–Jeff Myers, 614-424-7705 or myersjd@battelle.org.

Portable water analyzers– Adam Abbgy, 614-424-5484 or abbgya@battelle.org.

Upcoming Events

March 9-10, 2000
Meeting of AMS Pilot's Air Stakeholder Committee, Denver, CO

March 12-17, 2000
PITTCON©00, New Orleans, LA

March 23-24, 2000
Meeting of AMS Pilot's Water Stakeholder Committee, Charleston, SC

June 18-22, 2000
A&WMA 93rd Annual Meeting & Exhibition, Salt Lake City, UT

Visit the AMS pilot on the Web at http://www.epa.gov/etv/07/07_main.htm.